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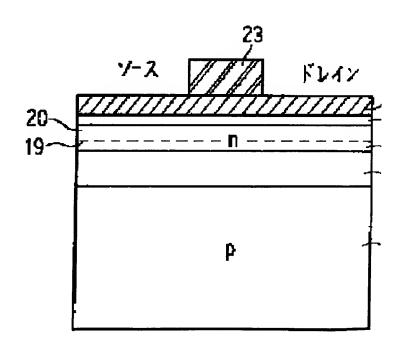
(74) Representative:

(54) SEMICONDUCTOR DEVICE AND ITS MANUFACTURE

(57) Abstract:

PURPOSE: To obtain the title semiconductor device provided with an n-channel GET whose high-speed electron mobility can be utilized effectively by forming the n-channel FET composed of the following: a substrate composed of an SiGe mixed crystal; a channel layer which has been formed on it and which is composed of Ge or an SiGe mixed crystal; an SiGe mixed crystal layer; and a gate electrode.

CONSTITUTION: The title semiconductor device is provided with the following: a substrate 41 composed of an Si1-xGex (where 0.7≤x≤0.85) mixed crystal; and a channel layer 17 which is formed on the substrate 41 and which is composed of Ge or an Si1-zGez (where 0.9≤z<1) mixed crystal. In addition, the title



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semiconductor device is provided with an n-channel FET which is constituted of the following: Si1-yGey (where 0.7≤y≤0.85) mixed crystal layers 18, 20 formed on the channel layer 17; and a gate electrode 23 provided so as to form a channel in the channel layer 18. For example, a Ge channel layer 17 and an Si0.2Ge0.8 layer 18 are epitaxially grown on a p-type Si0.2Ge0.8 substrate 41. Then, Sb 19 is controlled to be a monoatomic layer or lower and adsorbed; after that, an Si0.2Ge0.8 layer 20 and an Si layer 21 are deposited.

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